

STEPS TO BUILDING A TARGET MARKET  
MODEL FOR A NEW UNIVERSITY

A THESIS  
SUBMITTED TO THE DEPARTMENT OF MANAGEMENT  
AND THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES  
OF BILKENT UNIVERSITY  
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRATION

By  
KURT KURUÇ  
JUNE 1988

# STEPS TO BUILDING A TARGET MARKET MODEL FOR A NEW UNIVERSITY

A THESIS

SUBMITTED TO THE DEPARTMENT OF MANAGEMENT  
AND THE INSTITUTE OF ECONOMICS AND SOCIAL SCIENCES  
OF BILKENT UNIVERSITY

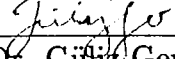
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRATION

By  
Kurt Kuruç  
June 1988

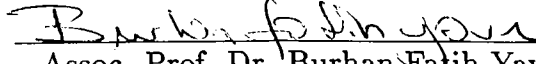
KURT KURUÇ  
Karamanbeyli, Ankara.

HD  
62.6  
K967  
1988  
B 1064

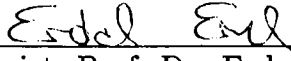
I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

  
Assist. Prof. Dr. Güliz Ger(Principal Advisor)


I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

  
Assoc. Prof. Dr. Burhan Fatih Yavaş

I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Business Administration.

  
Assist. Prof. Dr. Erdal Erel

Approved for the Institute of Economics and Social Sciences:

  
Prof. Dr. Mehmet Baray, Director of Institute of Economics and Social Sciences

## ABSTRACT

### STEPS TO BUILDING A TARGET MARKET MODEL FOR A NEW UNIVERSITY

Kurt Kuruç

Master of Business Administration

Supervisor: Assist. Prof. Dr. Güliz Ger

June 1988

In order to form a segmentation base for Bilkent University, and position accordingly, a model is developed which relates student performances at Bilkent University to their socio-economic and educational backgrounds. In addition, analyses of the information sources of the matriculants, in terms of both the assessments of the sources and the relative effects of the sources on the matriculant's decision are performed. Similarly, the factors that influence the matriculants are analysed both in terms of how Bilkent University is perceived according to each factor, and the relative effect of that factor on the matriculant's final decision.

Keywords: marketing non-profit organizations

## ÖZET

### YENİ BİR ÜNİVERSİTE İÇİN HEDEF PAZAR MODELİ OLUŞTURULMASI

Kurt Kuruç

İşletme Yüksek Lisans

Tez Yöneticisi: Yrd. Doç. Dr. Güliz Ger

Haziran 1988

Bu çalışmada, Bilkent Üniversitesinde okuyan öğrencileri bölümlemek ve hedef pazar seçimi için bir model oluşturuldu. Öğrencilerin Bilkent Üniversitesindeki performansları ile sosyo-ekonomik ve eğitimsel özellikleri arasında bağlantı kuran model, 249 kişilik bir örnekleme uygulanan anket sonucu oluşturuldu. Araştırma aynı zamanda, üniversite seçimi esnasında, öğrencilerin bilgi erişim sistemleri ve göz önüne aldıkları faktörleri inceledi. Söz konusu bilgi kaynakları ve faktörler, Bilkent Üniversitesinin bu özellikler açısından değerlendirilmesinin yanısıra son karar üzerindeki etkileri açısından da incelendi.

Anahtar kelimeler: sosyal pazarlama, yüksek eğitim/öğretim kuruluşlarının pazarlaması

## ACKNOWLEDGEMENT

I would like here to express my gratitude to just some of the people who have, in various ways, helped me towards the formation of this thesis. In the first place I want to thank Dr. Gliz Ger for her invaluable guidance and the delightful way in which she gave it. I am also grateful to Dr. Burhan Fatih Yavař for the stimulating discussions we have had on various topics related to the thesis and to Dr. Erdal Erel for his kind interest. In addition, I would like to thank all the students without whose cooperation this study could not have taken place and also İge Pırnar who so kindly helped in the distributing and collecting of the questionnaires.

# TABLE OF CONTENTS

<b>1</b>	<b>THE PROBLEM</b>	<b>1</b>
<b>2</b>	<b>LITERATURE REVIEW</b>	<b>4</b>
<b>3</b>	<b>METHODOLOGY</b>	<b>9</b>
3.1	Sampling and Procedure . . . . .	11
3.2	Operationalization of the Independent Variables . . . . .	14
3.2.1	Operationalization of socio-economic variables . . . . .	14
3.2.2	Operationalization of the educational background . . . . .	15
3.2.3	Operationalization of Achievement Motivation . . . . .	15
3.3	Data Processing and Analysis . . . . .	18
<b>4</b>	<b>ANALYSIS</b>	<b>21</b>
4.1	Factor Analysis . . . . .	23
4.2	Regression Analysis . . . . .	33
4.3	Achievement Motivation Analysis . . . . .	40
4.4	Information sources and the factors that are considered when evaluating universities, during the matriculation period, by the presently enrolled students . . . . .	42
<b>5</b>	<b>Summary and Conclusion</b>	<b>52</b>
<b>A</b>	<b>The Questionnaire</b>	<b>58</b>
<b>B</b>	<b>Definitions of the variables that enter into the models</b>	<b>64</b>



# LIST OF FIGURES

2.1	Issues in Market-Oriented Institutional Planning Facing Colleges and Universities . . . . .	5
4.1	Standing of scholarship holding students according to the segmentation variables income level and SSPC grades. . . . .	25
4.2	Standing of non-scholarship holding students according to the segmentation variables, income level and SSPC grades . . . .	26

## LIST OF TABLES

3.1	Sampling . . . . .	12
3.2	Sampling on a Faculty Basis . . . . .	13
3.3	Social Grades and Occupations . . . . .	16
3.4	Operationalization of High Schools and number of students in each grade . . . . .	17
3.5	Breakdown of Correlation between Cum.GPA.s and latest GPA.'s, by departments . . . . .	20
4.1	Segmentation Variables . . . . .	22
4.2	Segmentation . . . . .	24
4.3	Matrix of correlations between independent variables . . . . .	27
4.4	The proportion of variance accounted for by the common factors	29
4.5	Factor Score Coefficient Matrix . . . . .	30
4.6	Communality of variables and the percent of variance accounted for by each of the retained factors . . . . .	32
4.7	Factor Correlation Matrix . . . . .	34
4.8	Factor Pattern Matrix-Oblimin Rotation . . . . .	35
4.9	Weights used for the Surrogate Variables (Varimax Rotation)	37
4.10	Summary of the Regression Analysis . . . . .	38
4.11	Results of the Regression Analysis with Backwards Elimination	39
4.12	Average achievement motivation scores and Average GPA scores for each sub-sample . . . . .	41
4.13	The extent to which various information sources are taken into consideration in decision making . . . . .	45
4.14	The extent to which various factors are taken into considera- tion in decision making . . . . .	46
4.15	Means and probabilities indicating differences in means of var- ious information sources . . . . .	47

4.16 Means and probabilities indicating differences in means of various factors . . . . . 48

# 1. THE PROBLEM

The purpose of this study is to utilize marketing principles to help build strategies for higher educational institutions. In this respect, Bilkent University will be analysed as a case study.

As Kotler (1985:7) defines:

Marketing is the analysis, planning, implementation, and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets to achieve institutional objectives. Marketing involves designing the institution's offerings to meet the target markets' needs and desires, and using effective pricing, communication, and distribution to inform, motivate, and service the markets.

Again defined by Kotler (1985:150) a market is the set of all people who have an actual or potential interest in a product or service and the ability to pay for it. But, not every person in the market demand the same characteristic from the product or service. That is every market is made up of quite different types of consumers, or market segments. Furthermore, there is the possibility of serving all of these segments (*mass marketing*) or concentrating on a few of the more promising segments (*target marketing*). In relation to what has been mentioned so far, any institution that wishes to market its goods/services is in need of understanding and consequently satisfying the needs of its target market(s).

In this respect, in the case of universities, the demand side is assumed to be consisting of various segments demanding different needs in the form of certain minimum requirements from the graduates. Keeping this point in mind, universities are assumed to be in need of building up an optimum allocation of resources for the formation of graduates who can "best" satisfy the market needs. Basically, in order to satisfy the market needs, universities

can take action both during admissions, and during the course of education. Moreover, the existence of the minimum requirements of a graduate of any kind is supposed to impose certain minimum qualification requirements for the matriculants which then can be upgraded during the course of education.

In Turkey, in 1988, around 690,000. matriculants applied to the Student Selection and Placement Center (SSPC) to be placed in an higher educational program. Of these, only around 180,000 matriculants could be placed. From these figures, it appears that the demand to enter into a higher education program is much higher than the available capacity. Except Bilkent University, which was founded in 1986, all the other universities are state universities.

In the case of Bilkent University, students are required to pay a tuition fee which is around thirty times higher than that of the state universities, and this difference appears to be an influential factor in the matriculants decisions. That is, while facing competition for students from lower-cost public universities, Bilkent University needs to determine how it can create and offer more value for matriculants to warrant their selecting Bilkent University.

The purpose of this study is to attempt to ascertain how and why the presently enrolled students have chosen Bilkent University, and attempt to define their underlying characteristics in terms of their socio-economic and educational backgrounds. This information then may be used for improving the performances of the presently enrolled students by understanding their shortcomings / strengths and besides it may also be used to solve the issue of how to attract high quality matriculants who are willing to pay for their education.

In the following chapter, previous studies that apply marketing principles to solve higher educational problems are discussed.

Chapter 3 defines a methodology so as to gather relevant information about the presently enrolled Bilkent University students concerning;

- *their socio-economic and educational backgrounds,*
- *the factors and information sources that students consider during their matriculation periods,*
- *clues about their achievement motivation.*

Chapter 4 builds, both factor analysis and regression models that relate students' grade point average (GPA) performances at Bilkent University to

their socio-economic and educational backgrounds. These models attempt to address the underlying reasons for student success and/or failures. Furthermore, achievement motivation of students is analyzed in relation to academic performance. This chapter concludes with an analysis of the factors and information sources that the matriculants take into consideration.

In chapter 5, some concluding remarks and implications of the study are presented. Finally, the limitations of the study and some suggestions for further research are discussed.

## 2. LITERATURE REVIEW

Among the earliest to suggest that marketing is a valid function for non-business organizations as well as business organizations was Kotler and Levy (1969). Later, Kotler (1979) discussed the controversy produced in response to their article of 1969, and the possible reasons for it. He pointed out that marketing was perceived as aggressive promotion by a group of Colleges and Universities and unaccompanied by any real improvements in competitive positioning, teaching quality or student services. According to Kotler however, 'Market-Oriented Institutional Planning' is the correct way to deal with problems.

The issues analyzed by Kotler for market-oriented institutional planning that pertain to Colleges and Universities are listed in figure 2.1.

Knight and Johnson (1981), also emphasized the danger of understanding marketing solely as promotion; and referring to Kotler, they define the goals of a market-centered University as *high attraction* and *high retention* of students.

In terms of Universities, they define the 4 P's as:

- *Product includes a composite of courses, people, facilities; and services that are purchased by and benefit the student.*
- *Price includes investing money for tuition, fees, books; and other expenses; they invest their time in studying, commuting, and being separated from family and friends. Students also lose time and money in delaying employment.*
- *Place is a term used broadly to include when and where courses are offered and the method of instruction employed.*
- *Promotions are bilateral communications that anticipate the needs of potential learners and try to meet those needs. Promotion only succeeds when the product, price, and place are in proper order.*

---

Figure 2.1: Issues in Market-Oriented Institutional Planning Facing Colleges and Universities †

---

#### MARKET ANALYSIS

1. What important trends are affecting higher education? (*Environmental Analysis*)
2. What is our primary market? (*Market Definition*)
3. What are the major market segments in this market? (*Market Segmentation*)
4. What are the needs of each market segment? (*Need Assessment*)
5. How much awareness, knowledge, interest, and desire is there in each market segment concerning our college? (*Market awareness and attitude*)
6. How do key publics see us and our competitors? (*Image analysis*)
7. How do potential students learn about our college and make decisions to apply and enroll? (*Consumer Behavior*)
8. How satisfied are current students? (*Consumer satisfaction assessment*)

---

#### RESOURCE ANALYSIS

1. What are our major strengths and weaknesses in faculty, programs, facilities, etc.? (*Strengths/Weaknesses analysis*)
2. What opportunities are there to expand our financial resources? (*Donor opportunity analysis*)

---

#### MISSION ANALYSIS

1. What business are we in? (*Business mission*)
2. Who are our customers? (*Customer definition*)
3. Which needs are we trying to satisfy? (*Need targeting*)
4. On which market segments do we want to focus? (*Market Targeting*)
5. Who are our major competitors? (*Competitor identification*)
6. What competitive benefits do we want to offer to our target market? (*Market Positioning*)

---

† Reproduced from *Strategies for Introducing Marketing into Nonprofit Organizations*, Philip Kotler, *Journal of Marketing*, January 1979.

---



Shapiro (1973) is also in agreement with the idea that realistic marketing and planning can enable private organizations to improve their operations substantially. In his view the non-profit manager's major marketing task has three major components; these are: resource attraction, resource allocation, persuasion. He then considers each of the marketing mix elements in relation to these tasks.

According to Lolli and Scannel (1983), the demand of Colleges and Universities for help from marketing research in the late seventies, was the result of the decline of the applicant pool and the escalating cost of education. Colleges and Universities were facing such questions as; How could they enhance the institution's image? How effective were their activities? Lolli and Scannel point out that many institutions have developed ways of coming to a better understanding of their position in the marketplace, their share of the market, and their institution's viability. According to them, the reservoir of information that the admission officers had was mostly descriptive in nature; that is, information which simply served to describe the current state of affairs. In their paper, Lolli and Scannel suggest an expanded perspective for the utility of admissions marketing and also they provide examples of how such information can become a force for planning. They state that each evaluation should begin with a consideration of the particular program's goals and objectives. According to them, some programs are quite often continued just because they have always been conducted and in this manner, an identification of goals and objectives will assist in the determination of whether or not a program is required. It is suggested that this determination be carried out on the basis of product evaluations (measures how well a particular goal is met) and process evaluations (attempts to explain why or why not an objective was met).

Santos (1984) argues that, usually, recruitment efforts are aimed at expanding the markets which are barely being tapped, or in exploring entirely new markets. Instead, he argues, institutions of higher education should try directing recruitment efforts at target markets which they are already serving, since these might produce more favorable returns at lower cost.

Brooker and Noble (1985), reviewed why marketing is important to any organization and they suggest that a major problem of both Colleges and Universities is that they have difficulties in implementing formal marketing programs. They identify the reason for the lack of formal marketing programs

at most educational institutions as the unusual complexity of the marketing mix (product/service, price, promotion, and place) and the number of diverse groups that have inputs into its components. After identifying the complexity of the marketing mix they turn their attention to the functions of a university marketing officer in relation to the problems faced.

Bruker and Taliana (1985) used a series of surveys to assess the image of a University so as to assist in the identification of institutional strengths and weaknesses. These were intended to collect the views of various student and employee groups concerning the University's services and learning environment, e.g. academic programs, policies and procedures; student services, facilities and general functions. Their summary is as follows:

We are in the people business and the services we render must take into consideration the needs of "our people"-those students and other citizens who reside in the region we serve. In order to do so we must first answer some questions.

- What is known about students as they enter the institutions of higher education?
- What is known about students as they leave the institution: via graduation, via withdrawing during a term, or dropping out?
- How is knowledge of the above reflected in institutional mission statements?
- What are our institutional strengths and weaknesses? What are we doing to enhance the former and to eliminate the latter?

If the needs of our students are to be served, it is essential that those needs be known and addressed. Only then can a viable marketing plan for the institution be developed.

When entering universities, matriculants are assumed to have certain expectations and plans concerning their futures; which are thought to be shaped by their socio-economic and educational backgrounds. Furthermore, in light of their socio-economic and educational backgrounds, future plans and expectations of the matriculants are believed to influence their motives and their involvement in the course of education. This suggestion appears to make sense, as a study by French (1958) in Hilgard (1971) illustrates that behavior is affected jointly by motivational disposition (A persistent tendency to

the arousal of a specific motive) and conditions of arousal. According to the theory, when conditions of arousal favor those with a given motivational disposition, their performance of the required task is superior to that of those lacking in this motivational disposition.

In light of these, the methodology designed in the following chapter aims to identify the socio-economic and educational backgrounds of the presently enrolled students and their achievement motivation in relation to their academic performances. For this purpose, the factor-analytical model discussed in chapter 4 will attempt to identify certain patterns between academic performance and, socio-economic background together with the achievement motivation analysis. Subsequently, these patterns - if present - may be made use of in improving the performances of the presently enrolled students.

Enlargening the scope, the underlying characteristics of the present student population is assumed to be generalizable for new matriculants. In this way, the information sources and factors that have influenced matriculation decisions and their effectiveness can be assessed. The assessments of the effectiveness of these sources and factors may be used to build communication strategies for the coming years.

In summary, patterns in academic performance versus socio - economic and educational background variables, and achievement motivation scores may be made use of in improving the academic performances of the presently enrolled students. In light of these characteristics of the presently enrolled students and their associated successes and/or failures in Bilkent University, appropriate target market(s) for Bilkent University may be identified. Finally, with the aid of the information sources that are taken in to consideration and their effectiveness and, the factors that matriculants consider and their effectiveness on the final decision may in fact be used to generate communication strategies for the appropriate target market(s).

### 3. METHODOLOGY

As it has been explained in the former chapter, this study attempts to find out certain patterns - if there are any - between the academic performances of the presently enrolled students in Bilkent University in relation to their socio - economic and educational backgrounds. That is, the study attempts to identify the question; “Are there any underlying reasons affecting students academic performances?”. And if there are certain identifiable patterns, the second research question is ; “How can these underlying reasons be considered in order to improve the performances of the presently enrolled students in Bilkent University?”

The design of the research is such that various factors and the ways they affect the student performances are attempted to be identified and then evaluated. For this purpose a descriptive correlation design is used in which the academic performance of the presently enrolled students is considered as the dependent variable, whereas their socio - economic and educational backgrounds constitute the independent variables. By this way, a wide range of variables that may be affecting academic performance is believed to be taken into consideration. In addition, information concerning student motivations are also considered, which are also thought to be affecting academic performance. However, the non-quantitative operationalization of motivation variables precludes their inclusion in the models; motivational analysis will be performed separately and qualitatively.

For operationalizing the student performance, their latest GPA scores will be used. The fact that the student population in the Bilkent University is a very young one and that the latest available GPA scores will be those of the first semester of the second year students has certain limitations on the validity of the conclusions of the study, in that, the performances of the students in the freshman year may not be indicative of their actual performances throughout the rest of the four years. Nevertheless, by considering it

and being aware of this fact, the freshman performance will be considered as a performance evaluation criterion. Moreover, at least some second year (first semester) results will also be used. On the other hand, the socio - economic and educational backgrounds constitute the independent variables. Certain classificatory variables are also included in the analysis, such as the age, sex, faculty and departments of the students.

The information collected from and about students can be classified as follows:

- Information concerning their socio-economic background.
- Information sources, and their affect on the matriculants decision.
- Identification and comparison of factors that are used to assess universities.
- Clues about a student's motivation.
- Previous and present educational performances of students (Student Selection and Placement Center (SSPC) results, high school and GPA scores).

The first four items of the above list are extracted by Sections I, II, III and IV of the questionnaire employed.

Past and present educational performances of the students are taken from the student registration office.

When integrated, these sets of information will be used to identify the underlying reasons that lead students to perform as they do.

In turn, the expectation is that this information will contribute to strategic plans in two ways:

- Different segments may be identified and in accord with the characteristics of each segment strategy formulations can be designed to meet organizational objectives.
- Strategies and actions to bring out the best in the present students, keeping in mind their underlying socio-economic, educational and motivational characteristics, can be designed.

Having identified the target population as described in the former paragraphs, appropriate communication strategies can be built to attract suitable students.

The sampling procedure that is applied to employ the questionnaire is discussed in the following section.

### 3.1 Sampling and Procedure

The domain of the total sample consists of first and second year students of the faculty of Engineering, the faculty of Economics and Administrative Sciences and the two-year educational school. The faculty of Arts and Sciences is excluded, because here entrance requirements are based on a special ability test.

The total student body at Bilkent University is heterogeneous. Therefore, this cluster of students is be divided into mutually exclusive and collectively exhaustive subgroups all of which are known to be more homogeneous in themselves. By observational studies, it was identified in advance that the total population consisted of two almost distinct groups that differ both in terms of their socio-economic and educational backgrounds; the faculty of Economics and Administrative Sciences, and the faculty of Engineering. Although they have completed the same questionnaire, these two distinct groups have been analyzed separately when appropriate. Exploratory research in the form of observation, indicated that the student body in the faculty of Economics and Administrative Sciences was much more heterogeneous in terms of socio-economic characteristics than that of the students in the faculty of Engineering.

Hence, the entire population of the students from the faculty of Economics and Administrative Sciences has been covered so as to identify and control the heterogeneity. A convenience sampling (Based on a sample which is selected on the basis of the convenience of the researcher) procedure was used to capture as many students from the faculty of Engineering as possible.

Population and sample information have been tabulated in table 3.1, based on the departments included in the study. Similarly, a breakdown giving population and sample information according to faculties considered are given in table 3.2.

Since all of the engineering students have been awarded scholarships, from the start of the academic semester 1987-1988, financial concerns are not thought to enter into their choice; whereas the students in the faculty of Economics and Administrative Sciences are required to pay the tuition fee which is an important decision making factor.

The process of distribution and collection of most of the questionnaires took place before the start of various classes and this procedure was completed

Table 3.1: Sampling

Strata	Population	Sample	%
CS1 <sup>†</sup>	52	14	25 %
CS2	10	7	70%
EE1	55	42	76%
EE2	26	17	65%
IE1	69	20	29%
IE2	23	10	43%
MAN1	93	63	68%
MAN2	20	14	70%
ECON1	41	31	76%
IR1	7	4	57%
PA1	2	2	100%
CTP1	20	8	40%
T& H1	52	14	26%
TOTAL	446	245	55%

† The departments cited in the table

CS:Computer Science  
EE:Electrical Engineering  
IE:Industrial Engineering  
MAN:Management  
ECON:Economics  
IR:International Relations  
PA:Public Administration  
CTP:Computer Technology  
T& H: Tourism

Table 3.2: Sampling on a Faculty Basis

Faculty	Population	Sample	%
ENGINEERING	235	111	47%
ECON.& ADM. SCIENCES	166	124	75%
CTP & T&H <sup>†</sup>	45	24	53%

†

CTP:Computer Technology  
T& H: Tourism



within 15 minutes. In the case of a small number of the Engineering-Faculty students, these same questionnaires were filled out, under the same conditions, in the dormitories or laboratories. Although the questionnaire is self administered instructions were given so that the students would give full descriptions of the occupations of their parents and also, in the word association section they would write the first word that came to mind.

## **3.2 Operationalization of the Independent Variables**

As mentioned in the Problem chapter, performance is expected to be a function of the socio-economic and educational backgrounds of the students. At this point, these socio-economic and educational characteristics are quantified so as to prepare them for further analysis.

### **3.2.1 Operationalization of socio-economic variables**

The social and economic characteristics are quantified together, since their combined meaning is believed to be more informative.

The measuring of the social class must be objective, not simply based on opinion, and the norms used must also be easy to measure, such as parental income and occupation. However, since simple objective criteria may not adequately describe social class, prestige rating will also be taken into consideration for the subtle differences it may uncover.

In this context, the following criteria are suggested as being indicative of social class;

- Residential information; urban vs. rural origin which is quantified by allocating weights to the sizes of the cities, towns, etc on the basis of their populations. The prestige of the area that the city belongs to is also included.
- Parents' level of education, income and occupation. Both mothers' and fathers' level of education in terms of school graduated from (primary, secondary, high, university or other), income and occupation are taken into consideration.

#### **Operationalization of parental occupation**

For the purpose of quantifying the parental occupations of the students the method proposed in the "Handbook for Interviews" (The Marketing Research Society) is used.

Using this method, people are classified into six social grades, as described in table 3.3. This method, makes use of the information on the exact nature of the job, and any special training and /or qualification required, any responsibility for staff and the size of the organization.

### **3.2.2 Operationalization of the educational background**

The second class of independent variables are those related to the students' previous educational background. For the purpose of quantifying this class of variables the following information is used.

- High school graduated from, which can be grouped on the basis of the medium of instruction (English, Turkish or other), and reputation,
- Whether it is a state-high school or college (are they accustomed to paying money for education or not),
  - High school grade (HSG).
  - SSPC grades
  - Number of times the student entered the SPSS before being accepted to Bilkent University,
  - Whether or not he/she went to the preparatory school.
  - Whether or not he/she holds a scholarship.

### **Operationalization of the High Schools Studied**

The information concerning students' high schools was obtained by an open ended question in the questionnaire. Next, high schools were grouped on the basis of their judgmental qualities together with their tuition requirements.

The resulting groups are summarized in table 3.4.

The resulting groups appear to be homogeneous in themselves both in terms of the quality of education and required tuition. The resulting ranking in the third column is, inevitably subjective and the assesment of this information has been carried out at the nominal level.

And finally, personal information concerning age, sex and the department of the student has also been taken into consideration.

### **3.2.3 Operationalization of Achievement Motivation**

Achievement motivation refers to a tendency to define one's goals according to a standard of excellence in the product or performance to be attained.

Table 3.3: Social Grades and Occupations

	Gr.	Social Class	Occupation
Non- Manual	A	Upper Middle	Higher managerial, administrative professional
	B	Middle Class	Intermediate managerial administrative or professional
	C1	Lower Middle	Supervisory or clerical and Junior managerial, administrative or professional
Manual	C2	Skilled working	Skilled manual workers
	D	Working Class	Semi and unskilled manual workers
Manual and non-manual	E	Those at lowest level of subsistence	State pensioners or widows (with no other earnings) and casual workers

Table 3.4: Operationalization of High Schools and number of students in each grade

Group of High Schools	No of Students	Grade
Top notch high schools (state)	31	1
High quality state schools	42	2
High quality private schools	70	3
Relatively low quality private schools	39	4
Standart state high schools	70	5

The word association technique is used to measure the achievement motivations of the presently enrolled students. The underlying assumption in word association is that when a person responds promptly to stimulus words he is apt reveal a good deal about himself both by what he says and by how he says it. In theory, a word association test may consist of a single word. However since certain comparisons are usually desirable, it is customary to construct a list of words. In our case, ten stimulus words in written form were used. These were: young, book, job, life, time, university, student, lecture, responsibility and grade. Subjects were asked to write down the first word that came to mind for each stimulus word.

In this study the visual method of stimuli presentation is used as Kintz (1964) in Cramer (1968), in a study concerning the validity of different methods of stimuli presentation, reports that the association values obtained from studies in which stimuli are presented visually can be used effectively.

To counteract the tendency to delay in responding in the written form, subjects were asked to write down the first word that came to mind against each stimulus word.

### 3.3 Data Processing and Analysis

In the former section operationalization of the variables are discussed. Following the operationalization of the variables the data were recorded into a data-base management system to prepare for further analysis.

Information for each part (sections I, II, III and IV on the questionnaire) was analyzed independently first and then integrated and interrelated.

For the analysis of the information in sections I, II and III of the questionnaire, factor analysis was carried out, after obtaining descriptive statistics and crosstabulations. Section IV is content analyzed so as to identify the forces that control student motivation.

As has been mentioned in "The Problem" section (chapter 1), student's cumulative GPA's are used for the purpose of characterizing each student's performance at Bilkent University. In order to relax this assumption somewhat, the correlations between the Cumulative GPA's and the last semester GPA's of the second year students are analyzed. When the total number of 89 cases are considered, the correlation between Cum.GPA. and the latest GPA. is found to be significant, (+.91). The breakdown of the correlations

according to departments where there are second year students, is listed in table 3.5.

Table 3.5: Breakdown of Correlation between Cum.GPA.s and latest GPA.'s,  
by departments

Department	No. of Cases	Corr.
Man	27	.95
IE	23	.91
EE	24	.80
COM	15	.95
TOTAL	89	.91

## 4. ANALYSIS

The planning and analysis framework is designed such that the two faculties are considered as different strategic business units (SBU) where a SBU, as defined by Glueck and Jauch (1984) is an operating division of a firm which serves a distinct product/market segment or a well-defined set of customers or a geographic area.

The market is segmented, using the SSPC grades and the total income levels of the students as the major segmentation variables. The resulting breakdown of the total student sample according to these segmentation variables are shown in table 4.1. In this table, the numbers in each cell correspond to the counts, row percentages, column percentages and the total percentages of every cell according to the presented breakdown, from top to bottom respectively.

Figures 4.1 and 4.2 clarify the relative standings of the scholarship holding students versus non-scholarship holding students according to the two segmentation variables *income level* and *SSPC grades* in three dimensions.

These cross tabulations of SSPC grades and income levels indicate that the students of the faculty of E&AS's have high income levels with low SSPC grades. Students of the faculty of engineering with scholarships come from a population whose income levels are low and SSPC grades are very high. Whereas, students from the engineering faculty who do not have scholarships have middle to low values on both variables.

For in-depth analysis, a third dimension, GPA scores of the students at Bilkent University is introduced into the picture (see table 4.2). In this table, for each cell, a percentage breakdown of students according to their GPA performances are given. Codes 1, 2, 3 and 4 represent the GPA intervals 0-1, 1-2, 2-3 and 3-4 respectively.

With this dimension it becomes possible to determine target markets for each SBU, such that quality of the product, i.e. performance of students is



Table 4.1: Segmentation Variables

SSPC grades.

Count Row Pct Col Pct Tot Pct		1	2	3	4	5	Row Total
Income level (TL.)	-500,000	2 3.7 2.3 .9	2 3.7 3.0 .9	8 14.8 50.0 3.5	37 68.5 72.5 16.0	5 9.3 45.5 2.2	54 23.4%
	500,000- 1,000,000	22 37.3 25.6 9.5	14 23.7 20.9 6.1	4 6.8 25 1.7	14 23.7 27.5 6.1	5 8.5 45.5 2.2	59 25.5%
	1,000,000- 1,500,000	25 53.2 29.1 10.8	13 40.4 28.4 8.2	2 4.3 12.5 .9		1 2.1 9.1 .4	47 20.3%
	1,500,000- 2,000,000	17 58.6 19.8 7.4	12 41.4 17.9 5.2				29 12.6%
	2,000,000-	20 47.6 23.3 8.7	20 47.6 29.9 8.7	2 4.8 12.5 .9			42 18.2%
	Column Total	86 37.2%	67 29%	16 6.9%	51 22.1%	11 4.8%	231 100%

The SSPC codes 1, 2, 3, 4 and 5 correspond to intervals 330-421, 421-512, 512-603, 603-694, 694-785 respectively.

improved.

The conclusion is that, at moderate to high (512-694) SSPC grade levels, those students with higher income levels show higher performances in the form of GPA scores. At the highest SSPC level (694-785), all of the students fall into the highest GPA score level. At lower SSPC levels (330-512), no prominent pattern is observed (see table 4.2).

Returning back to the presently enrolled students, in the following sections, an interpretation of those variables which affect student performances in the form of GPA scores will be analyzed. In doing so, in the first step, factor analysis is used, which is discussed in the following section. Following that, resulting factors from factor analysis will be used as independent variables in regression analysis in order to see whether they relate in any pattern to the dependent variable, students' GPA score.

#### 4.1 Factor Analysis

The reason for using factor analysis is that it refers to a variety of statistical techniques whose common objective is to represent a set of interrelated variables in terms of a smaller number of relatively independent and interpretable, hypothetical factors. In general, the first step of factor analysis involves an examination of the interrelationships among these variables. Inspection of the correlation matrix may show that there are relationships among these variables, and that the relationships within some subsets of variables are higher than those between the subsets. A factor analytic approach may then be used to address whether these observed correlations can be explained by the existence of a smaller number of hypothetical factors called factor extraction (Kim 1978; Marija 1984). After factor extraction, factors are rotated in order to ease their interpretation.

By this way it will be possible to represent all 14 independent variables by a smaller number of factors which will ease their interpretation. These 14 variables that are made use to characterize the student's socio-economic and educational situation are explained in appendix B. The correlation matrix for these variables is presented in table 4.3. Inspection of the correlation matrix shows that there are relationships among these variables.

Data are analysed using *principle component* with latent root criterion and oblimin rotation. Missing values are handled using pairwise deletion

Table 4.2: Segmentation

SSPC grades.

		Total %	1	2	3	4	5	Row Total
Income level (TL.)	-500,000		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	54 23.4%
	500,000-1,000,000		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	59 25.5%
	1,000,000-1,500,000		1 2 3 4	1 2 3 4	1 2 3 4		1 2 3 4	47 20.3%
	1,500,000-2,000,000		1 2 3 4	1 2 3 4				29 12.6%
	2,000,000-		1 2 3 4	1 2 3 4	1 2 3 4			42 18.2%
	(TL.)							
Column Total			86 37.2%	67 29%	16 6.9%	51 22.1%	11 4.8%	231 100%

Codes of 1, 2, 3 and 4 are used to resemble the GPA intervals: 0-1, 1-2, 2-3 and 3-4, respectively.

Figure 4.1: Standing of scholarship holding students according to the segmentation variables income level and SSPC grades.

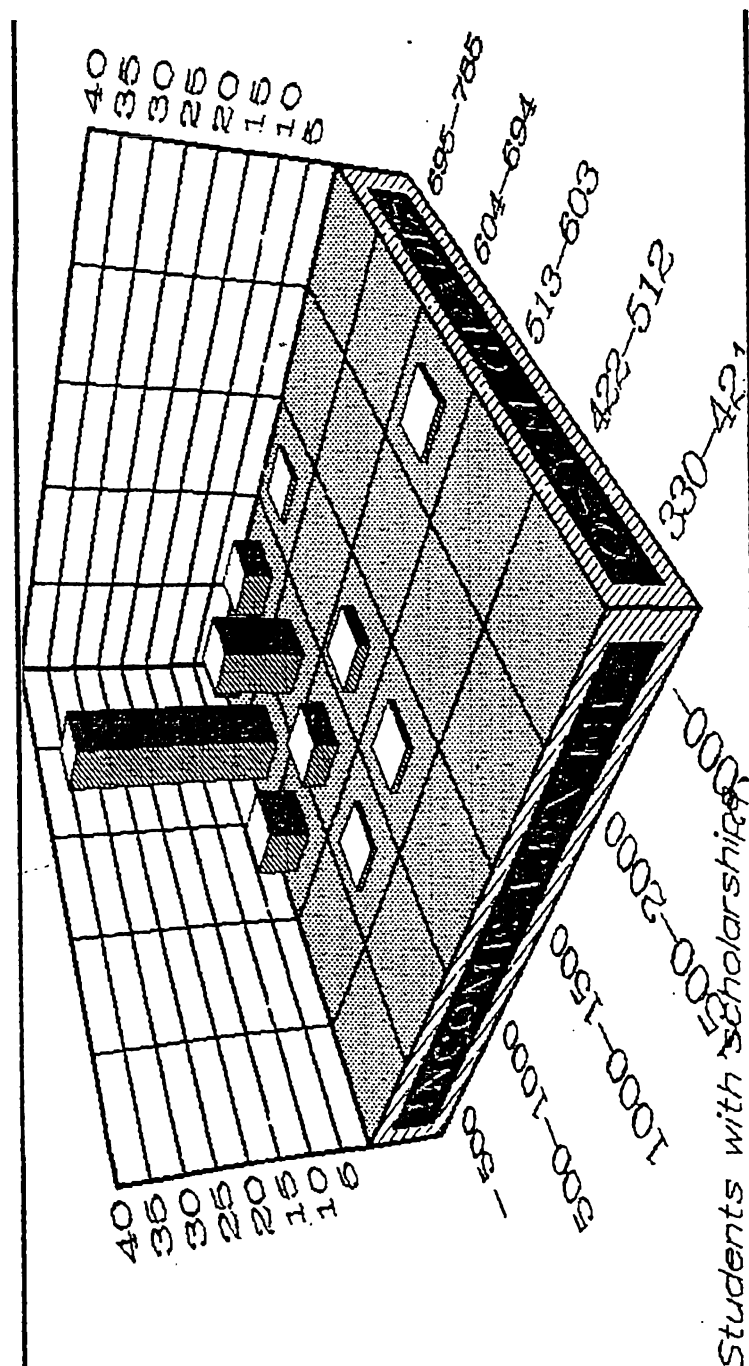


Figure 4.2: Standing of non-scholarship holding students according to the segmentation variables, income level and SSPC grades

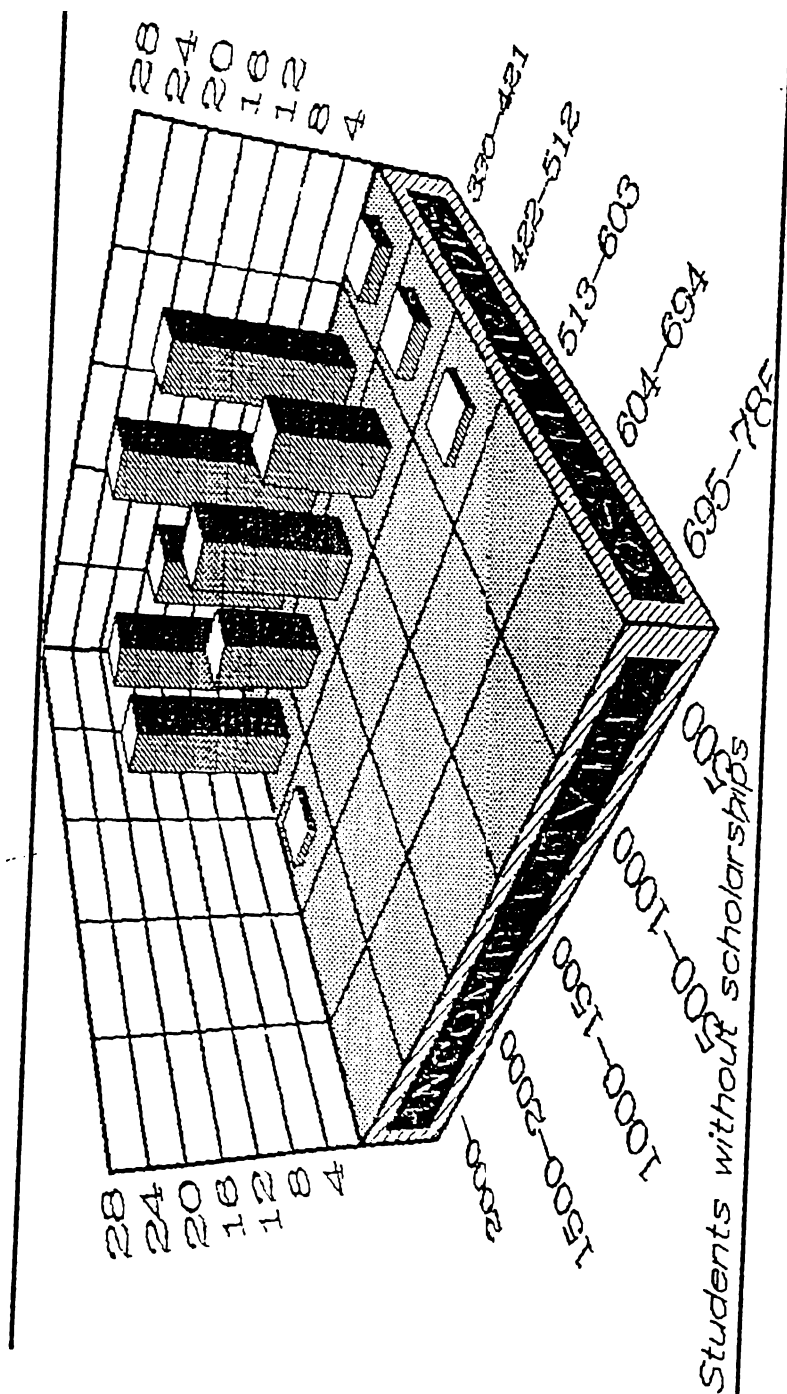


Table 4.3: Matrix of correlations between independent variables

	X3	X4	X5	X6	X7	X8	X9	X12	X13	X14	X15	X16	X17	X18
X3	1.00000													
X4	.64417	1.00000												
X5	.18048	.19382	1.00000											
X6	.21810	.47521	.01271	1.00000										
X7	.12798	.20777	.85439	.17884	1.00000									
X8	.19531	.24340	.47952	.00639	.51151	1.00000								
X9	.24124	.24145	.07259	.09396	.06397	.16408	1.00000							
X12	.10657	.13789	.43814	-.02691	.44658	.45886	-.09598	1.00000						
X13	.06453	.03906	-.33401	.01937	-.31203	-.13427	.02857	-.27403	1.00000					
X14	-.06826	-.06846	-.47240	.03050	-.41866	-.31699	-.19404	-.32627	.53527	1.00000				
X15	-.05902	-.11651	-.47337	.01914	-.46811	-.41207	-.09581	-.41023	.54731	.82737	1.00000			
X16	.12218	.14038	-.19167	.08524	-.12486	-.06651	.15913	-.15712	.39653	.25992	.44740	1.00000		
X17	.43950	.36328	.34985	.19092	.34211	.32821	.14024	.21819	-.10175	-.18757	-.25194	-.08008	1.00000	
X18	.22015	.57541	-.02746	.62902	.06747	.00253	.09964	-.13332	.16929	.13642	.18263	.14549	.11830	1.00000

Determinant of Correlation Matrix = .0010283

(In pairwise deletion, cases that have values on both variables used in a calculation are included in the analysis.)

For the purpose of obtaining theoretically meaningful constructs and/or dimensions, oblique factor rotation (oblimin) is used, since it is theoretically and empirically more realistic in that, it is unlikely that influences in nature are uncorrelated (Norusis 1984; Hair) (Oblique rotations, as the name suggests, do not require the new axis to be uncorrelated; whereas, in orthogonal rotations the new axis must be mutually perpendicular and uncorrelated). On the other hand, for regression analysis, in order to determine the surrogate variables the results of the varimax rotation is being made use of. The rationale for this is that, in varimax rotation factors are uncorrelated; hence, problems like multicollinearity are avoided in the regression analysis.

In order to decide on the number of factors to represent the data, the percentage of the total variance explained by each factor is examined. These variances are listed in the column labeled as *eigenvalue* in table 4.4. The next column contains the percentage of the total variance attributable to each factor.

In order to determine the number of factors to be used in the model the 'eigen value greater than or equal to 1 criterion' (also called the *latent root criterion*) is used. This method suggests that only factors that account for variances greater than 1 should be included. The rationale for this criteria is that any individual factor should account for at least the variance of a single variable if it is to be retained for interpretation (Hair; Green 1978).

Table 4.5 contains the coefficients that relate the variables to the four factors derived by the procedure FACTOR. Each row of table 4.5 contains the coefficients used to express a variable, in terms of the four factors, and are called *factor loadings* since they indicate the amount of weight assigned to each factor. Variable X13, which is the GPA scores of students is expressed in equation 1.

$$GPA = .14 \times F_1 - .1 \times F_2 + 1.4 \times F_3 + .07 \times F_4 + 1.4 \times U_{GPA} \quad (1)$$

Factor 1, including total income level, fathers income level, size of the house and students perception of their own income represent the *economic situation* of the family.

The second factor can be interpreted to represent *mother's socio economic*

Table 4.4: The proportion of variance accounted for by the common factors

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
X3	1.00000	1	4.16236	29.7	29.7
X4	1.00000	2	2.75423	19.7	49.4
X5	1.00000	3	1.27668	9.1	58.5
X6	1.00000	4	1.16901	8.4	66.9
X7	1.00000	5	.94858	6.8	73.6
X8	1.00000	6	.73221	5.2	78.9
X9	1.00000	7	.64503	4.6	83.5
X12	1.00000	8	.55570	4.0	87.5
X13	1.00000	9	.49953	3.6	91.0
X14	1.00000	10	.43628	3.1	94.1
X15	1.00000	11	.35705	2.6	96.7
X16	1.00000	12	.23182	1.7	98.3
X17	1.00000	13	.11991	.9	99.2
X18	1.00000	14	.11161	.8	100.0



Table 4.5: Factor Score Coefficient Matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
X3	.04394	.08560	.04103	.34559
X4	.02358	.01370	.25927	.17341
X5	.31450	.04905	-.01305	-.09001
X6	-.06765	-.10716	.45732	-.14522
X7	.31904	.04629	.05710	-.14934
X8	.29698	.13512	-.10528	.07705
X9	-.16658	-.07227	-.13958	.59543
X12	.31221	.08664	-.04910	-.15171
X13	.10072	.37139	-.06846	.05137
X14	.08534	.33823	.04431	-.20625
X15	.02947	.32920	.01428	-.10886
X16	.09698	.32909	-.10579	.19001
X17	.14086	.04851	.03822	.15618
X18	-.05625	-.02883	.44013	-.11717

*status (SES)* by taking into consideration the variables; mother's occupational quantification, mother's income level and mother's educational standing.

The third factor, summarizes the *educational background* of the student by considering, SSPC grade, high school grade and high school quantification.

The fourth factor, is judged to represent *the degree of stimulation* of the student, by considering the urban - to - rural variable and father's educational level.

From this analysis, factor 3, which represents the educational backgrounds of students, appear to be the most closely related factor to the GPA scores, since the coefficients in front of the variables in the above equation indicate the weight assigned to each factor.

The question, how well the four-factor model describes the original variables, is answered by computing the proportion of the variance of each variable explained by the four-factor model. Since the factors are uncorrelated, the total proportion of variance explained is just the sum of the variance explained by each factor. The total percentage of variance in the GPA index accounted for by this four-factor model is 66.9 % (table 4.6). The proportion of variance explained by the common factors is called the *communality* of the variable. The variance that is not explained by the common factors is attributed to *unique factor*. This unique factor represents that part of the GPA index that cannot be explained by the common factors. It is unique to the GPA index variable (equation 1).

The appropriateness of the model is checked by considering Bartlett's test of sphericity (Bartlett's test of sphericity tests the hypothesis that the observed correlation matrix comes from a population in which the variables are uncorrelated, recalling that for a factor model to be useful the variables must be correlated with each other.) and the frequency and magnitude of the residuals (The difference between the observed correlation coefficient and that estimated from the model is called the *residual*). Bartlett's test of sphericity has no observed significance (rejecting the hypothesis that the variables are uncorrelated), and less than half of the residuals (46 %) have absolute values greater than 0.05. These results lead to the conclusion that the model fits the data well, and further analysis can be carried on.

In order to achieve a simpler structure factors are rotated. After rotation the factor matrix changes, but the communalities and the percent of total

Table 4.6: Communality of variables and the percent of variance accounted for by each of the retained factors

Variable	Communality	Factor	Eigenvalue	Pct of Var	Cum Pct
X3	.59124	1	4.16236	29.7	29.7
X4	.76018	2	2.75423	19.7	49.4
X5	.73603	3	1.27668	9.1	58.5
X6	.74546	4	1.16901	8.4	66.9
X7	.75709				
X8	.59199				
X9	.66845				
X12	.54851				
X13	.64216				
X14	.77570				
X15	.83497				
X16	.51358				
X17	.41824				
X18	.77866				

variance explained do not change. During rotation, if the axes are maintained at right angles the rotation is said to be *orthogonal*, for which various algorithms exist (Norusis 1984; Green 1978). If the angles are not maintained at right angles, the rotation is called *oblique*. In oblique rotation there are small correlations between the factors; see table 4.7. Whereas, in the case of an orthogonal rotation, the factor correlation matrix is an identity matrix (There are 1's on the diagonal and 0's elsewhere on the matrix).

The factor pattern matrix is sorted so that variables with high loadings on the same factor appear together. Factor loadings less than 0.5 in absolute value are suppressed entirely to clarify the picture.

As can be seen from table 4.8, four factors, "Economic Situation", "Mothers SES", "Educational Background" and "Stimulation", summarize the fifteen variables. Three of these fifteen variables had factor loadings less than 0.5 in absolute value, hence suppressed.

As equation 1 represents, educational backgrounds of the students have the major impact on the GPA score of the student (1.4). Economic situation of the student also affects the GPA scores positively. Factor 2, which is labeled as 'mother's SES' seems to affect the GPA score negatively, by a small amount (-.1). Variables that form each factor are presented in equations 2, 3, 4 and 5.

$$\text{Economic Situation} = .82 \times X_7 + .81 \times X_5 + .71 \times X_{12} + .73 \times X_8 \quad (2)$$

$$\text{Mothers SES} = .87 \times X_{18} + .86 \times X_6 + .79 \times X_4 \quad (3)$$

$$\text{Educational Background} = .30 \times X_{15} + .28 \times X_{14} + .24 \times X_{16} \quad (4)$$

$$\text{Stimulation} = .81 \times X_9 + .62 \times X_3 \quad (5)$$

## 4.2 Regression Analysis

From the total set of variables, by analyzing the factor matrix of the varimax rotation (table 4.9), variables "fathers income level", "high school grade", "mothers occupational quantification" and "residential context" are identified

Table 4.7: Factor Correlation Matrix

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
FACTOR 1	1.00000			
FACTOR 2	.12227	1.00000		
FACTOR 3	-.31877	.12247	1.00000	
FACTOR 4	-.22335	-.19922	-.05054	1.00000

Table 4.8: Factor Pattern Matrix-Oblimin Rotation

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
X7	.82169			
X5	.81777			
X8	.75101			
X12	.74208			
X17				
X6		.88976		
X18		.88429		
X4		.65681		
X13			.79748	
X15			.77351	
X14			.75946	
X16			.68774	
X9				-.85213
X3				-.54669

as the appropriate variables to be used as surrogate variables in the regression analysis. For this purpose, variables with the largest factor loadings are selected, except for factor loadings which were of approximately the same size. In the latter case, the variables which were believed to be more representative of a particular factor were selected. The adjusted  $R^2$  (.31) value of the model is not a high one. But it must be kept in mind that the factor matrix from which the surrogate variables were derived, explained 67 % of the total variance to start with. On the other hand, factors other than identified by the design may be in effect, such as the motivations of the students. As can be seen from table 4.10, variables “residential context”, “fathers income level” and “high school grade”<sup>4</sup> are significant at the 95 % level where as “mothers occupational quantification” is significant at almost 90 % level. Except “fathers income level”, all of the variables are positively related with the GPA performance. Moreover, it is worthwhile to note that the most important variable effecting GPA performance is the educational background.

On the other hand, another regression model has been built by including all 14 of the variables. The contribution to the adjusted  $R^2$  and the F values and the significance of each variable are observed by the backward elimination method (All variables are entered, and then removed one at a time based on a removal criteria. The criteria is *the maximum possibility of F-to-remove a variable can have*. The variables with F-probabilities greater than .10 are removed one at a time.). As a consequence of this analysis, variables “fathers income level”, “high school grade”, “high school quantification” and “mothers occupational quantification” were found to be more appropriate to enter into the regression model. In this way, both the adjusted  $R^2$  (.36) of the model and the significance of each variable are improved (table 4.11). The results of this analysis match closely with the previous one, supporting the methodology of the former analysis.

When the total sample of the engineering faculty is considered, economic situation appears to be significant, and negatively loaded, while it is not significant in the sub-samples. This is due to fact that, almost all of the students that hold scholarships in the sample come from low income families where as the rest come from relatively high income families and rank lower in terms of their educational qualifications. As a result, the economic situation factor loses its significance when the sample is broken into two, according to scholarship holding. The effects of the educational background on the GPA

Table 4.9: Weights used for the Surrogate Variables (Varimax Rotation)

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
X7	.81818			
X5	.81443			
X8	.72772			
X12	.70996			
X17				
X15		.80418		
X13		.78250		
X14		.77468		
X16		.65745		
X18			.86879	
X6			.86249	
X4			.69118	
X9				.81053
X3				.62267



Table 4.10: Summary of the Regression Analysis

	Adjusted $R^2$	R	F	B	T	p
TP †	.31	.57	29			
X9				.175	2.313	.0215
X5				-.077	-2.293	.0227
X18‡				.049	1.608	.1091
X14				.332	8.230	.0000
C				-.117	-0.253	.8006

† TP: Total Population

‡ X18: Mothers Occupational Quantification

X5: Fathers Monthly Income

X9: Urban vs. Rural residence

X14: High School Grade

Table 4.11: Results of the Regression Analysis with Backwards Elimination

	Adjusted $R^2$	R	F	B	T	p
TP †	.36	.61	36.07			
X18 ‡				.041	1.4	.1615
X5				-.063	-1.92	.0555
X16				.171	4.85	.0000
X14				.279	7.17	.0000
C				.399	1.23	.2187

† TP: Total Population.

‡ X18: Mothers Occupational Quantification

X5: Fathers Monthly Income

X16: High School Quantification

X14: High School Grade

performance is both the largest and the most significant one. In addition, students that come from urban areas appear to be more successful in GPA performance.

The results of the factor analysis indicated that, the economic situation of the family had a positive effect on the GPA performance. Yet, fathers income - by itself - as it appears in the regression model, seems to have a negative effect on the GPA performances of the students. It seems that, fathers level of income, by itself, is not sufficient to lead students to success. Instead, the underlying factors that lead parents to earn high incomes (which is assumed to be taken care of by the factor *economic situation* in factor analysis) seem to be effective in the GPA performances of the students.

Yet, the adjusted  $R^2$  values of the models signal that the variables entered in the models might not be sufficient to drive sound conclusions. In the following section, another cause for student performance, namely, student motivations are analysed.

### 4.3 Achievement Motivation Analysis

For the purpose of examining the word association data for achievement motivation, words are content analysed.

Every response to each word is classified as either neutrally (0), positively (+1), or negatively (-1) oriented in terms of achievement motivation. Following this, for each person, the motivation scores given for each of the ten words are summed.

The correlation between the achievement motivation scores and the average GPA's are examined for each sub - sample. The achievement motivation scores and average GPA's for each sub - sample are summarized in table 4.12, and the correlation between the two is found to be insignificant (.13). It must be kept in mind that subject responses are content analysed for achievement motivation, which is suggested to be only a first step toward a theory of academic motivation ( Maehr and Sjogren 1969).

Although the academic performances of the E&AS students appear to be moderate (see table 4.12), these students are active in other social activities and hence this reflects on their achievement motivation scores, with a relatively high average motivation value of +.46. While on the other hand, the achievement motivation scores of non-scholarship engineering students

Table 4.12: Average achievement motivation scores and Average GPA scores for each sub-sample

Population	Achievement Motivation Score	Average GPA
Total	.21*	2.65
E&AS	.46	2.44
Eng	-.08	3.02
Eng w/s <sup>†</sup>	-.01	3.43
Eng w/o s <sup>‡</sup>	-.25	1.98

<sup>†</sup> w/s: with scholarships

<sup>‡</sup> w/o s: without scholarships

\* positive numbers represent high achievement motivation  
negative numbers represent low achievement motivation

appear to be very low, which possibly is an indication of the fact that these students cannot be successful when competing with the students that hold scholarships and this reflects on their motivation scores.

The two words 'lecture' and 'student' received highly negatively oriented responses from Eng.w/s students ( 35 % and 20 % of the Eng.w/s responses were negatively oriented , while only 2 % and 6% were positively oriented, for 'lecture' and 'student' respectively.). Moreover, the contents of the responses to these two words (such as 'discomfort', 'robot', 'depression' etc.) probably indicate that these students are possibly feeling somewhat over-loaded.

Actually, cross comparisons of student performances based on GPA scores, among the two faculties (ENG and E&AS) is troublesome since the academic programs (both in terms of the course loads and performance expectations) of these faculties are thought to be different and that a GPA score in one faculty may not have the same meaning in another in terms of actual performance. Considering this fact, it may be better to consider the association of the achievement motivation scores with GPA scores only within faculties and not across faculties.

Keeping this point in mind, it appears that, in the faculty of engineering, those students who have high GPA scores (ENG w/s) seem to have relatively higher achievement motivation scores that matches (table 4.12). Remembering the fact that, most of the ENG w/s students come from relatively low income families, achievement motivation is thought to be an important factor for the purpose of explaining the high academic performance these students possess, based on the view that education happens to be an important means for upward mobility in social class (Stewart 1985).

#### **4.4 Information sources and the factors that are considered when evaluating universities, during the matriculation period, by the presently enrolled students**

In the previous sections, the analysis aims to identify the underlying characteristics of the target population. In this section, the presently enrolled students are analyzed for their information sources and for the factors that they have considered during their matriculation period.

Factor analysis has been carried out to identify the recurring information

sources and the common factor's taken into consideration by the matriculants. As a result of this analysis high school teachers, family and relatives, friends, media and TV, private institutional tutors and the campus visit are perceived as one coherent group whereas sources basically originating from Bilkent University such as Bilkent University publications, invitation letters, Bilkent University students and high school visits are perceived as similar.

Similarly, for the purpose of ascertaining the relative effects of these information sources on the final decision, they have been put into three groups by factor analysis as follows:

1. Bilkent University students, high school teachers, high school visit, private institutional tutors,
2. Family and relatives, media and TV, campus visit, friends,
3. Invitation letter, Bilkent University publications.

In the same way, factors influencing the final decision have been grouped as follows:

1. *Quality of life at the University*: Sport facilities, distance from the city, social activities, library facilities, total cost,
2. *Academic quality*: Medium of instruction being English, student-professor ratio, quality of faculty, student quality, job opportunities after graduation,
3. Financial aid and dormitories.

The grouping of these factors according to their contribution to the matriculation decision are also the same.

The interpretation of this analysis is that items have similar affects and/or similar perceptions within clusters, and are differentiated from the items in other clusters. Consequently, marketing programs in the form of cost benefit sort of analysis, can be based on these similarities and diversities of the factors and information sources according to institutional strengths and weaknesses.

It is important to know the response rates of the subjects to the information sources and factors listed. In this way, the percentage of the students which has taken a particular source or factor into consideration, can be determined. This analysis is performed for both sections II and III of the

questionnaire; for the sub-groups, ENG WS, ENG W/O S and EAS's. The results are tabulated in tables 4.13 and 4.14. In the columns on the right of tables 4.13 and 4.14, sources and factors are ranked according to the frequency. According to this ranking, family and relatives, friends, invitation letter from Bilkent University, newspaper and media are the most frequently considered information sources; whereas very few of the students are exposed to information from high school visits, high school teachers, private institutional tutors and Bilkent University students, the latter being due to the fact that in the first year there were only a very small number of Bilkent University students.

While students in the faculty of EAS's are much more exposed to these information sources students of ENG W/O S have very low response rates when compared with other sub-samples.

The most frequently considered factors appear to be the medium of instruction being English, the number of students per professor, the number of students per personal computer (PC), reputation for student quality and job opportunities after graduation. Sports facilities and social activities are low on the list.

Another dimension of this analysis is the weights assigned to each source and factor for which the average values are tabulated in tables 4.15 and 4.16. The sign.F results of the analysis of variance between the three clusters are also listed in the table. The data are collected on a five point likert scale. In tables 4.15 and 4.16, both students evaluations on these sources and factors, and the impact of these sources and factors on the final decision, are listed.

Sources family and relatives, Bilkent University publications, invitation from Bilkent University and high school visits are evaluated as different by the different sub-samples at the 5 % significance level , while the rest of the sources are evaluated as similar. Of these, those that were found to be significantly differently evaluated, family and relatives , invitation from Bilkent University and high school visit also differ in relative importance. Factors that originate from Bilkent University are both evaluated higher and are paid higher importance by the students that hold scholarships. For those who pay the tuition fee, the evaluations of their parents and their relatives are positive and this source has a serious impact on their final decision whereas the similar figures are much lower for those who have scholarships.

Invitation from Bilkent University, high school visit, campus visit and

Table 4.13: The extent to which various information sources are taken into consideration in decision making

	ENG		E&AS	Total	Rank †
	WS *	W/O S			
Friends	72 % <sup>‡</sup>	53 %	82 %	75 %	2
Family and relatives	69 %	75 %	84 %	78 %	1
Newspaper,media and TV	60 %	69 %	74 %	69 %	4
Bilkent students	42 %	22 %	51 %	44 %	8
Bilkent publications	74 %	28 %	65 %	63 %	5
Campus visits	49 %	56 %	57 %	55 %	6
High school teachers	39 %	47 %	48 %	45 %	9
Invitation from Bilkent	86 %	40 %	70 %	72 %	3
High school visit	41 %	13 %	38 %	36 %	10
"Dersane Hocaları"	47 %	34 %	52 %	48 %	7

† Information sources are ranked in a descending order  
on the basis of the total response rate

‡ 72 % of the Eng w/s students reported that  
they considered friends as an information source

\* W/S: with scholarships  
W/O S: without scholarships



Table 4.14: The extent to which various factors are taken into consideration in decision making

	ENG		E&AS	Total	Rank <sup>†</sup>
	W/S <sup>*</sup>	W/O S			
Total cost	52 % <sup>‡</sup>	78 %	79 %	70 %	7
Quality of the teaching faculty	88 %	84 %	93 %	90 %	2
Financial aid package	95 %	50 %	60 %	70 %	7
Social activities	60 %	53 %	72 %	66 %	8
English (medium of instruction)	86 %	97 %	94 %	92 %	1
Sports facilities	57 %	50 %	69 %	63 %	9
Number of students per professor	84 %	88 %	94 %	90 %	2
Number of students per P.C.	75 %	81 %	84 %	81 %	3
Distance from the city	54 %	63 %	68 %	63 %	9
Dormitory facilities	86 %	72 %	69 %	75 %	6
Job opportunities after graduation	70 %	88 %	80 %	78 %	5
Library facilities	56 %	53 %	64 %	60 %	10
Reputation for student quality	73 %	72 %	85 %	80 %	4

<sup>†</sup> Factors are ranked in a descending order  
on the basis of the total response rate

<sup>‡</sup> 52 % of the Eng w/s students reported that  
they had taken total cost factor into consideration  
in making their decisions

<sup>\*</sup> W/S: with scholarships  
W/O S: without scholarships

Table 4.15: Means and probabilities indicating differences in means of various information sources

	Evaluation				Relative Importance			
	ENG <sup>†</sup>		E&AS*	p	ENG		E&AS	p
	W/S <sup>II</sup>	W/O S			W/S	W/O S		
Friends	3.7 <sup>†</sup>	3.1	3.5	.1930	3.2	2.3	2.9	.0567
Family and relatives	3.8	4.1	4.2	.0560	3.3	4.3	3.8	.0035
Newspaper, media and TV	3.2	3.2	3.5	.1587	2.9	2.9	3.2	.2302
Bilkent students	3.9	3.4	3.5	.4399	2.8	2.1	2.9	.3305
Bilkent publications	4.4	3.8	3.8	.0042	3.6	2.8	3.4	.2005
Campus visits	3.5	3.8	3.7	.7027	3.4	3.3	3.4	.9183
High school teachers	3.3	2.7	2.8	.2275	2.3	2.1	2.3	.7926
Invitation from Bilkent	4.4	4.5	4.0	.0206	4.2	4.4	3.8	.0334
High school visit	3.9	3.5	3.0	.0514	3.4	1.8	2.8	.0572
Private instit. tutors	3.3	3.7	2.9	.1067	2.9	3.8	2.8	.1359

<sup>†</sup> Mean on a scale of 5 of degrees of influence

<sup>‡</sup> Faculty of Engineering

\* Faculty of Economics & Administrative Sciences

<sup>II</sup> W/S: with scholarship

W/O S: without scholarship

Table 4.16: Means and probabilities indicating differences in means of various factors

	Assessment				Relative Importance			
	ENG †		E&AS *	p	ENG		E&AS	p
	WS <sup>II</sup>	W/O S			WS	W/O S		
Total cost	2.3 †	2.3	2.9	.0041	2.3	3.4	3.2	.0005
Quality of the teaching faculty	4.7	4.7	4.7	.7367	4.6	4.8	4.7	.5203
Financial aid package	4.6	3.4	3.7	.0000	4.6	3.7	2.8	.0000
Social activities	2.1	3.0	3.6	.0000	3.4	3.7	3.8	.2640
English (medium of instruction)	4.5	4.5	4.9	.0000	4.4	4.7	4.9	.0000
Sports facilities	1.8	1.9	3.0	.0000	3.3	2.8	3.3	.3647
Number of students / professor	4.4	4.4	4.8	.0022	4.4	4.5	4.7	.0168
Number of students per P.C.	4.8	4.6	4.6	.1926	4.6	4.6	4.6	.9869
Distance from the city	2.8	2.6	2.6	.6894	2.9	2.8	2.9	.9368
Dormitory facilities	4.3	4.3	3.9	.0422	4.2	4.0	3.6	.0222
Job opportunities after grad.	4.2	4.6	4.4	.1276	4.4	4.7	4.5	.5621
Reputation for student quality	3.5	4.0	3.9	.0468	4.3	4.0	3.8	.1475

† Mean on a scale of 5 of degrees of influence

‡ Faculty of Engineering

\* Faculty of Economics & Administrative Sciences

II W/S: with scholarship

W/O S: without scholarship

Bilkent University publications have the major impact on the decisions of the ENG WS and Bilkent University has been evaluated as high by these sources. Similarly, invitation from Bilkent University, family and relatives, and private institutional tutors have the major impact on the ENG W/O S and are also evaluated positively. On the other hand, family and relatives and invitation from Bilkent University are the most important sources that influence the students of EAS's and these are also evaluated positively by the sources.

The lowest evaluations about Bilkent University are made by the high school teachers and the private institutional tutors. Although evaluated low, these two sources do not have serious impacts on the decision; infact, students pay the least attention to these sources (see table 4.15).

Although not very many of the ENG W/O S and EAS students are exposed to high school visits (only 13 % and 38 % respectively) these matriculants do not pay attention to these visits (see table 4.15). 41 % of the ENG W/S are exposed to high school visits and the impact of the visit on their decision has a value of 3.4, which means that this source has a positive impact on the Eng W/S students.

While there exists a consensus on the evaluations of the factors such as the quality of the teaching faculty, the number of PC's per student, the distance from the city and the job opportunities after graduation - which are evaluated very high except the distance to city - the rest of the factors are evaluated differently. The quality of the teaching faculty, the financial aid package, English being the medium of instruction, number of PC's per student, number of students per professor, job opportunities after graduation and reputation for student quality have the major impact on the ENG W/S sub-sample. Although ENG WS pay attention to the reputation of the general student quality, they evaluate it low compared with other factors. For the students of EAS's, the factors related with the quality of education such as number of professors and number of PC's per student, and the quality of the academic staff have serious impacts on the matriculants decision.

Even though the relative importance of the social activities and sports facilities are found to be reasonably high, the evaluation of Bilkent University in terms of these factors is low. The major factors that have a different relative importance between different sub-samples are the total cost, financial aid package and the dormitory facilities and this difference probably arises

due to the scholarships offered.

Looking at table 4.13, the five information sources that exert the least stimulation on the students are high school visits, Bilkent University students, high school teachers, private institutional tutors and campus visit. Of these, the high school teachers have no influence on the matriculants decision, and the private institutional tutors have just a minor amount. Bilkent University students, as an information source will increase in importance as the student body of the university grows, but the problem with this source is that this source has, so far, no influence on the matriculants decision. On the other hand, campus visit has an impact on the decision process and the responses in table 4.15 indicate that students evaluate the campus positively. Giving emphasis on this fact and having more people see the campus may help influencing.

Finally, only 36 % of the total sample population has been exposed to high school visits. Although the evaluations of the students of this source is above neutral (and neutral for EAS's), the impact of this source on the final decision is below neutral for ENG W/o S (1.8) and for EAS's (2.8); while it is 3.4 for ENG WS. Precautions that intend to increase the impact of this source on the decision may help increase the outcome of this effort.

In summary, in general, certain information sources, in particular, the quality of the teaching faculty, job opportunities after graduation, English being the medium of instruction, and the number of personal computers and number of professors per student are seen to have had a general influence on the student's choice of Bilkent University. However, importance of some information sources show variance across sub-samples.

Among the Economics and Administrative Science Faculty students the sources of information that are found to be positively influential are family and relatives, letter of invitation from Bilkent University, campus visit and Bilkent University publications. Bilkent University is presented positively by these. High school teachers, private institutional teachers and high school visits are found to have had no influence. Among the scholarship engineering students it is the letter from Bilkent University, Bilkent University publications, campus visit and high school visit that are found to have the most influence, and to have presented Bilkent University in a positive way. On the other hand, high school teachers, Bilkent students, media and private institutional teachers are ineffective. Among the non-scholarship engineering

students, it is the letter from Bilkent University, family and relatives and private institutional teachers that are found to have the most influence and to have presented Bilkent University in a positive way.

Similarly, although certain factors, in particular distance from the city, number of students per PC, job opportunities after graduation and the quality of the teaching faculty are seen to have had a similar influence, certain factors are seen to be of greater or lesser importance across the sub-samples. Among the Economics and Administrative Science Faculty students English being the medium of instruction, quality of the teaching faculty, number of students per professor, number of PC's per student and job opportunities after graduation are the most important factors that influence the final choice. Whereas, distance from the city and financial aid package are ineffective. Among the scholarship engineering students the factors that are found to be positively influential are the quality of the teaching faculty, financial aid package, number of students per PC, English being the medium of instruction, number of students per professor and job opportunities after graduation. On the other hand, factors total cost and distance from the city are ineffective. Among the non-scholarship engineering students the factors that are found to be positively influential are the quality of the teaching faculty, English being the medium of instruction, job opportunities after graduation, number of students per PC and number of professors per student. Factors, distance from the city and the sports facilities are ineffective for this sub-sample.

## 5. Summary and Conclusion

The success of a university runs parallel to the success of its graduates. This being the case a university must, if it is to be successful, ensure that it both enrolls students of a high calibre and provides them with the education appropriate to their needs and capabilities.

So as to design suitable academic programs for the presently enrolled students it is essential to come to a good understanding of their potentialities. One way of achieving this is to clarify the relationship between such factors as the socio - economic backgrounds, educational backgrounds and the achievement motivation levels to the academic performance of the students. Further, a university will naturally seek to select students that have the potential of assisting that university to further its aims.

It is essential that an understanding of what affects the academic performance, measured in terms of GPA, be arrived at so that suitable measures can be taken to design programs appropriate for presently enrolled students and at the same time work out ways which will attract students of a high calibre to Bilkent University. To achieve these ends the first stage is to find out what the factors are which influence the GPA performance, and how, and to what extent. This study investigates two major factors influencing the GPA performance; these are the students' socio - economic and educational backgrounds on the one hand and the achievement motivation on the other.

A factor - analytical methodology is designed to determine the underlying patterns by which the socio - economic and educational background affects the GPA performance. In the first place factor analysis is used to represent the total range of socio - economic and educational background variables in terms of a smaller number of interpretable and relatively independent variables. Four interpretable factors are identified. These are; "Economic situation of the family", "Mother's socio - economic status (SES)", "Educational background" and "Stimulation". These factors are then used as surrogate

variables in regression analysis, which together with other descriptive analyses led to the following conclusions.

- the educational background has the most prominent effect (positive) on the GPA performance

- those students who come from urban areas are more successful in terms of GPA performance

- in the Engineering faculty:

- for scholarship holding students (with SSPC grades 695 and higher), the GPA performance is very high regardless of the income level ( $\text{GPA} \geq 3$ )

- for scholarship holding students with SSPC grades between 604 and 694, those students with relatively high incomes are more successful in terms of GPA performance

- non - scholarship students with moderate to low SSPC grades in conjunction with moderate to high income levels have low GPA performances in comparison with scholarship students

- in the faculty of Economics and Administrative Sciences:

- the GPA performances of both low income and relatively low SSPC grade students ( $\text{SSPC grade} \leq 421$ ) mostly fall within the range of  $1 \leq \text{GPA} \leq 3$

- at both moderate and high income levels there are high performers ( $\text{GPA} \geq 3$ ) as well as very low performers ( $\text{GPA} \leq 1$ )

Of all the factors involved, the educational background is the most important. On its own it is apparently sufficient to ensure success. The other factors, however, are not independently important, but seem to be effective only in combination with other factors. To give one instance, a high income level in conjunction with a good educational background generally contributes to a high GPA performance, whereas a high income level without a good educational background is usually found to be detrimental.

The mother's SES factor, contrary to expectation, came out very slightly negatively loaded to the GPA performance. It is too early to draw definitive conclusions in this matter but it is possible that this can be accounted for by the fact that most of the scholarship students (and they are the ones with mothers of low SES levels) were at boarding school for the main part of their schooling and consequently not with their mothers.

The regression models do not have high  $R^2$  values, which suggests that the socio - economic and educational background variables that are under consideration are not sufficient in themselves to explain the variations in the



GPA performances of the students. The inference is that other forces are also affecting GPA performance. As mentioned, one such force seems to be achievement motivation. Although achievement motivation is to a great extent, influenced by one's socio - economic and educational background, in this study achievement motivation is measured independently of the socio - economic and educational background. Content analysis of the word association data led to the following findings. The Economics and Administrative science students have high achievement motivation scores , but their interests seem not to be directed towards the programme of study into which they are enrolled. The achievement motivation scores of the Engineering Faculty scholarship students came out neutral, which may seem rather surprising; but this may perhaps be accounted for by the fact that these students feel somewhat overloaded. One should point out here, however, that these students are receiving high GPA's and are determined to be successful. On the other hand, the achievement motivation scores of the Engineering Faculty non - scholarship students came out negative. These students are working alongside the scholarship students and find they are not in a position to compete with them, which probably leads to frustration.

When the presently enrolled students are analyzed for the factors that they have considered during their matriculation period and for their information sources, the following are found to be the most significant factors in the decision-making of matriculants: the quality of the teaching faculty, job opportunities after graduation, English being the medium of instruction, and the number of personal computers (PC) and number of professors per student. Bilkent University is assessed high in these factors. For ENG w/s students, the financial aid package, quality of the teaching faculty and number of PC's per student are the most important factors. Whereas, English being the medium of instruction, the quality of the teaching faculty and number of students per professor are the most important factors for EAS faculty students. For ENG w/o scholarship students the most important factors are English being the medium of instruction, quality of the teaching faculty and job opportunities after graduation.

Naturally, those factors which are seen to be more influential on particular sub-samples can be used to design more effective communication strategies directed towards those sub-samples. Further, since carrying the educational

mission passes through the satisfaction of the parties who use the services, improving the universities characteristics which are highly valued by the target populations will pay back.

The way students acquire information about Bilkent University seems to differ across sub-samples. Especially, friends, family and relatives, invitation letter from Bilkent University and high school visits have statistically different effects on different sub-samples. For ENG w/s students, invitation from Bilkent University is the most important source. Family and relatives, and the invitation letter from Bilkent University have the most significant influence on the EAS and ENG w/o s students. Although the evaluations of the students about the high school visits are somewhat positive (and neutral for EAS students), this source does not seem to have any impact on the final decisions of the ENG w/o s students and the EAS students. The impact of this source is somewhat positive for ENG w/s students.

In conclusion, this study investigated the relationship between the academic performances of the presently enrolled Bilkent University students and their socio - economic and educational backgrounds. *Educational background, economic situation of the family, mother's SES and stimulation* are the factors found to be influential on the performances of these students. In parallel, an examination of the achievement motivations of these students seems to indicate that both the socio - economic and educational background and the course of education at Bilkent University are affecting their achievement motivations. In addition, the factors and information sources that have had influence during the admissions of the presently enrolled Bilkent University students are also analyzed.

Inevitably this study has certain limitations; GPA scores are used for performance evaluation but for the most part only first year first semester (some second year first semester GPA's were also available) scores were then available, and these may not be representative of a four - year program. This could be one reason for the low  $R^2$  values of the regression models. Using the same sample of students with their third or fourth year GPA's may confirm or refute the implicit assumption that the first year - first semester grades could stand for overall grades.

The methodology of the study is directed towards the total sample. The low  $R^2$  values suggest that the model does not completely predict the actual

behaviour. This is probably due to the fact that the sub - samples are different from each other in significant ways and this precludes their aggregation. Furthermore, GPA's may have different meanings in different faculties. This is probably due to the fact that performance expectations and grading policies are thought to lack uniformity among the different faculties. In further studies on these lines it might be advisable to apply the factor - analytical model separately for each sub - sample independently. In this way both the differences in the grading policies between faculties and the specific sub - sample characteristics can be resolved and accounted for.

Within the framework of these limitations it has been found that the students presently enrolled at Bilkent University have different background characteristics, with the result that there seem to be differences in their approach to their studies. Not only does Bilkent University have its own aims but it has also to take into account the varying attitudes and aims of its students. The question is, whether all the varying sub-samples involved should be given equal consideration or whether the university should concentrate on one group or another. Both the apparent advantages and disadvantages of the interaction or otherwise of these sub-samples, in relation to Bilkent University's mission, should be considered before this issue can be resolved. Another fact to be considered is that the various sub-samples appear to be influenced by different sources of information and different factors in their choice of a university. For instance it was the letter of invitation from Bilkent University that was the most influential source of information for the scholarship students and for them the decisive factors were the financial aid package and the quality of the teaching faculty. In the case of the non-scholarship students the principal source of information was friends and relatives and the letter of invitation from Bilkent University and for them the decisive factors were English being the medium of instruction and the quality of the teaching faculty. Consequently, a consideration of these variations would seem to be useful in the effective planning of communication strategies for the intake of students.

Finally, this analysis may become more meaningful if it can accompany further analysis including;

- environmental analysis : What important trends are affecting higher education?
- Image analysis : How do key publics (such as the press, parents, high

school teachers, etc.) see Bilkent University and competitors?

- Consumer satisfaction assessment: How satisfied are current students?
- Resource analysis
- Mission analysis
- Competitive analysis

Further analyses drawing on these points would lead to a more definitive analysis by completing the whole picture.

## A. The Questionnaire

Doldurmak üzere olduđunuz bu anket, bir master tezi için kullanılacaktır. Arařtırma sonuçları öğrencilerin daha iyi tanınması ve beklentilerinin anlaşılmasına yardımcı olacaktır.

Bu nedenle soruları samimi bir şekilde cevaplarsanız arařtırma sonuçları sağlıklı olacaktır.

Ayrıca, doğru veya yanlış cevap yoktur. Sizin kendi görüşlerinizi öğrenmek istiyoruz.

Bu bilgiler sadece arařtırma amacıyla kullanılacaktır. Cevaplar toplu olarak değerlendirilecektir. İsmiğiniz ve kişisel cevaplarınız gizli kalacaktır.

Yardımcı olduđunuz için şimdiden teşekkür ederiz.

I. GENEL BİLGİLER

1. Adı, Soyadı \_\_\_\_\_

2. Yaş \_\_\_\_\_

3. Cinsiyet                      kız ☐                      erkek ☐

4. Bölüm \_\_\_\_\_

5. Sınıf                      1 ☐                      2 ☐

6. Mezun olduğunuz lise \_\_\_\_\_

7. Okuduğunuz lisede eğitim dili hangisiydi?

☐ İngilizce                      ☐ Türkçe                      ☐ Fransızca                      ☐ Almanca                      ☐ Başka

8. Okuduğunuz lise Kolej miydi (özel) yoksa devlet lisesi miydi?                      ☐ Kolej (özel)                      ☐ Devlet

9. Bilkent'te burslu mu yoksa kendi kaynaklarınızla mı okuyorsunuz?                      ☐ burslu                      ☐ kendi kaynaklarıyla

10. Bilkent'te hazırlık okudunuz mu?                      ☐ okudum                      ☐ okumadım

11. Üniversite sınavına toplam kaç kez girdiniz? \_\_\_\_\_

12. Babanızın eğitim durumu nedir?

☐ İlk veya daha az                      ☐ Orta                      ☐ Lise                      ☐ Üniversite                      ☐ Master yada daha üstü

13. Annenizin eğitim durumu nedir?

☐ İlk veya daha az                      ☐ Orta                      ☐ Lise                      ☐ Üniversite                      ☐ Master yada daha üstü

14. Babanızın mesleği nedir? Detaylı anlatınız (Mühendisi, doktoru, serbesti çalışıyor yoksa bir yerde mi; ticaret mi uğraşıyor, ne tür bir ticaret, ne büyüklükte bir şirket v.b.) \_\_\_\_\_

Çalışmıyorsa, emekli mi? \_\_\_\_\_

15. Annenizin mesleği nedir? Yukarıdaki gibi detaylı anlatınız. \_\_\_\_\_

Çalışmıyorsa, emekli mi? \_\_\_\_\_

16. Babanızın aylık geliri aşağıdaki aralıklardan hangisinin içindedir?

-300,000                      300,000-600,000                      600,000-900,000                      900,000-1,500,000                      1,500,000-  
☐                      ☐                      ☐                      ☐                      ☐

17.Çalışıyorsa, annenizin aylık geliri aşağıdaki aralıklardan hangisinin içindedir?

-300,000      300,000-600,000      600,000-900,000      900,000-1,500,000      1,500,000-  
[ ]                      [ ]                      [ ]                      [ ]                      [ ]

18.Hanenize giren aylık toplam gelir nedir? (Anne ve/veya babanızın aylık gelirleri ve bunlara ek olarak, kira gelirleri, banka faizleri, tahvil-hisse senedi gelirleri ve bunun gibi gelirler eklendiğinde.)

-500,000      500,000-1,000,000      1,000,000-1,500,000      1,500,000-2,000,000      2,000,000-  
[ ]                      [ ]                      [ ]                      [ ]                      [ ]

19.Hanenize aşağıdaki kaynaklardan hangilerinden gelir girmektedir? (Birden çok işaretleyebilirsiniz).

[ ] Kira gelirleri                      - [ ] Banka faizleri                      [ ] Tahvil-Hisse senedi gelirleri  
[ ] Diğer                      Diğer ise ne \_\_\_\_\_

20.Türkiyede ki diğer ailelerle kıyaslarsanız, ailenizin ekonomik durumu nasıldır? Ortalamanın.....

Çok üstünde                      [ ]  
epey üstünde                      [ ]  
ortalamanın üstünde                      [ ]  
orta                      [ ]  
ortalamanın altında                      [ ]

21.Hayatınızın en büyük bölümü nerede geçti?

[ ] Büyük şehir                      [ ] Şehir                      [ ] Kasaba                      [ ] Köy

22.Ailenizin oturduğu şehir, kasaba veya köyün ismi \_\_\_\_\_

23.Aileniz, eğer şehirde oturuyorsa, hangi semtte oturuyor? \_\_\_\_\_

24.Ailenizin oturduğu ev                      [ ] kira                      [ ] kendinizin                      [ ] diğer                      diğer ise ne \_\_\_\_\_

25.Ailenizin sahip olduğu gayri menkul..      kaç ev (yazlık dahil) \_\_\_\_\_      kaç arsa (varsa) \_\_\_\_\_      hiç \_\_\_\_\_

26.Ailenizin oturduğu ev      dairemi \_\_\_\_\_      müstakil evmi \_\_\_\_\_      diğer \_\_\_\_\_

27.Ailenizin oturduğu evde kaç oda var? (mutfak, banyo hariç) \_\_\_\_\_

28.Ailenizin oturduğu evde kaç banyo/tuvalet var? \_\_\_\_\_

29.Ailenizin oturduğu ev kaç metrekare?

-100      100-150      150-200      200-250      250-  
[ ]                      [ ]                      [ ]                      [ ]                      [ ]

30.Siz, okul süresince nerede kalıyorsunuz?

[ ] yurttta, 1 kişilik odada  
[ ] yurttta, 2 kişilik odada  
[ ] yurttta, 4 kişilik odada  
[ ] akrabamın evinde  
[ ] ailenin yanında

II.

Üniversiteye başvururken, Bilkent hakkında HANGİ KAYNAKLARDAN bilgi almıştınız? Bilgi aldığınız bu kaynakların Bilkent hakkındaki düşüncelerini ve bu bilgi kaynaklarının, verdiğiniz kararda ne kadar Etkili olduklarını öğrenmek istiyoruz.

Aşağıdaki kaynaklardan Bilkent hakkında bilgi edindiklerinizin yanındaki kutuya bir Çarpı koyun. Sadece Çarpı koyduklarınızın yanındaki soruları cevaplandırın.

ÖRNEĞİN, arkadaş çevrenizin Bilkent hakkındaki düşünceleri çok olumlu ve sizin verdiğiniz karardaki etkileri çok yüksek olduysa..

Cok olumsuz					Cok olumlu					hic etkili degildi			Cok etkiliydi		
<del>X</del> 1.Arkadas Cevresi	1 [ ]	2 [ ]	3 [ ]	4 [ ]	<del>5</del> <del>[ ]</del>	1 [ ]	2 [ ]	3 [ ]	4 [ ]	<del>5</del> <del>[ ]</del>					

Bu bilgi kaynağının Bilkent hakkındaki düşünceleri nasıldı?

Bu kaynak, karar vermenizde ne kadar etkiliydi?

	Cok olumsuz					Cok olumlu					hic etkili degildi					Cok etkiliydi				
[ ] 1.Arkadaş Çevresi	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 2.Aileniz, akrabalarınız	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 3.Gazete,dergi, ve televizyon	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 4.Bilkent öğrencileri	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 5.Bilkent yayınları ve katalogları	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 6.Kampus ziyareti	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 7.Lise öğretmenleri	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 8.Üniversitenin davet mektubu	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 9.Lisenize gelen Bilkent öğretmen üyeleri	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			
[ ] 10.Dershane hocaları	1	2	3	4	5		1	2	3	4	5		1	2	3	4	5			
	[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]		[ ]	[ ]	[ ]	[ ]	[ ]			

Başka varsa

[ ] 11. ....	1	2	3	4	5	1	2	3	4	5
	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]



### III.

Üniversite seçiminde, karar vermeden önce hangi faktörleri gözönüne aldınız? Göz önüne aldığınız faktörlerin yanındaki kutuya bir Carpi işareti koyun. Sadece Carpi koyduklarınızın yanındaki soruları cevaplandırın.

	Tercihinizi yaparken, Bilkenti bu özellik açısından nasıl değerlendiriydiniz?					Karar verirken, Bilkentin bu özelliği sizin için ne kadar önemliydi?				
	Cok kötü				Cok iyi	hiç önemli değildi				Cok önemliydi
[ ] 1.Bilkentin paralı olması	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 2.Öğretim elemanlarının kalitesi	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 3.Burs imkanları	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 4.Sosyal aktivitelerin yoğunluğu	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 5.Eğitimin İngilizce olması	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 6.Sportif olanaklar	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 7.Hoca başına düşen öğrenci adedi. (küçük sınıflar)	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 8.Öğrenci başına düşen bilgisayar sayısı	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 9.Üniversitenin şehre uzaklığı.	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 10.Yurt olanakları	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 11.Bilkent mezunlarının mezun olduktan sonraki iş bulma şansları	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 12.Kütüphane imkanları	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
[ ] 13.Genel öğrenci kalitesi	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]
Başka varsa										
[ ] 14. _____	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]	1 [ ]	2 [ ]	3 [ ]	4 [ ]	5 [ ]

IV.

Yazılı kelimayı görünce ilk anda aklınıza gelen kelime yada reaksiyonu yazın. Lütfen fazla düşünmeyin. Hızlı cevaplayın.

genc\_\_\_\_\_

üniversite\_\_\_\_\_

kitap\_\_\_\_\_

öğrenci\_\_\_\_\_

iş\_\_\_\_\_

ders\_\_\_\_\_

hayat\_\_\_\_\_

sorumluluk\_\_\_\_\_

zaman\_\_\_\_\_

not\_\_\_\_\_

## B. Definitions of the variables that enter into the models

- x3<sup>†</sup> - 12<sup>‡</sup> - Fathers educational background
- x4 - 13 - Mothers educational background
- x5 - 16 - Fathers income level
- x6 - 17 - Mothers income level
- x7 - 18 - Total income of the family
- x8 - 20 - Perceived income
- x9 - 21 - Residential context (urban vs rural)
- x12 - 29 - The size of the house they live in
- x13 - The latest available GPA scores of the students
- x14 - High school grade
- x15 - SSPC grade
- x16 - High school quantification
- x17 - Fathers occupational quantification
- x18 - Mothers occupational quantification

<sup>†</sup>Variable name

<sup>‡</sup>Question number in the questionnaire

## REFERENCES

- [1] *Handbook for Interviews*. The Marketing Research Society, London.
- [2] George Brooker and Michael Noble. *The Marketing of Higher Education*. College and University, Spring, pp.191-200, 1985.
- [3] Robert M. Bruker and Lawrence E. Taliana. *The Institutional Self-Study: First Step in a Viable Marketing Program*. College and University, Fall, pp.32-42, 1985.
- [4] Phebe Cramer. *Word Association*. Academic Press, New York, 1968.
- [5] William F. Glueck and Lawrence R. Jauch. *Business Policy and Strategic Management*. McGrawHill, Auckland, 1984.
- [6] Paul E. Green. *Analyzing Multivariate Data*. The Dryden Press, Hinsdale, Illionis, 1978.
- [7] J.F. Hair, R.E. Anderson, R.L. Tatham, and B.J. Grablowsky. *Multivariate Data Analysis*. Petroleum Publishing Company, Tulsa, Oklahoma.
- [8] Ernest R. Hilgard, Richard C. Atkinson, and Rita L. Atkinson. *Introduction to Psychology*. Harcourt Brace Jovanovich, Inc., New York, 1971.
- [9] Paul B. Horton and Chester L. Hunt. *Sociology*. McGraw-Hill Kogakusha Ltd, Tokyo, 1976.
- [10] Brent Knight and Dennis Johnson. *Marketing Higher Education*. Educational Record, Winter, pp.28-31, 1981.
- [11] Philip Kotler. *Strategies for Introducing Marketing into Nonprofit Organizations*. Journal of Marketing, January, Vol.43, pp.37-44, 1979.

- [12] Philip Kotler, Fox Karen F.A., *Strategic Marketing for Educational Institutions*. Prentice- Hall, Inc. Englewood Cliffs, New Jersey 07632, 1985.
- [13] Philip Kotler and Sidney J. Levy. *Broadening the Concept of Marketing*. Journal of Marketing, January, Vol.33, pp.10-15, 1969.
- [14] Anthony Lolli and James Scannel. *Expanding the Focus of Admissions Marketing Utility*. College and University, Fall, pp.5-28, 1983.
- [15] Martin L. Maehr and Douglas D. Sjogren. *Atkinson's Theory of Achievement Motivation: First Step Toward a Theory of Academic Motivation?* Review of Educational Research, Vol.41, No.2, pp.143-157.
- [16] Marija J Norusis. *SPSS/PC For The IBM PC/XT*. SPSSinc, Chicago, Illionis, 1984.
- [17] Gilberto De Los Santos. *Application of Marketing Principles to Recruitment of Students Achieves Phenomenal Returns on Low Investment*. College and University, Spring, pp.245-250, 1984.
- [18] Benson P. Shapiro. *Marketing For Nonprofit Organizations*. Harvard Business Review: September-October, pp.123-132, 1973.

## VITA

The author was born in 1965 in Ankara and got the degree of BSc in Metallurgical Engineering in 1986 from the Middle East Technical University. He has worked as a research assistant at the department of Management in Bilkent University.